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Caregiver Life Satisfaction: Relationship to Youth Symptom Severity through Treatment

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Abstract

Objective—This study utilized the Satisfaction with Life Scale (SWLS) to investigate the life satisfaction of caregivers for youth receiving mental health services ($N = 383$), specifically how it relates to youth symptom severity throughout treatment.

Method—Hierarchical linear modeling (HLM) with a time-varying covariate was used to estimate the linear trajectory of caregiver life satisfaction and how it relates to youth symptom severity as rated by caregivers, youth, and clinicians.

Results—Initial caregiver life satisfaction was inversely related to caregiver and clinician rated youth symptom severity. Additionally, subsequent caregiver life satisfaction demonstrated a small but significant relationship to changes in youth symptom severity during treatment where a decrease in youth symptoms corresponded to an increase in caregiver life satisfaction, and vice versa. Caregiver background characteristics related to higher life satisfaction include being: married, a birth-parent, under 40 years old and having the absence of previous diagnoses of an emotional, behavioral or substance use disorder.

Conclusion—Caregivers of clinically-referred youth report low levels of life satisfaction throughout youth treatment. Given the bi-directional influences on one another, tending to the well-being of caregivers may positively influence both caregivers and youths.

Keywords

life satisfaction; caregivers; youth symptom severity; HLM; mental health treatment; Peabody Treatment Progress Battery; PTPB

Medical and psychological researchers share a concern for the well-being of informal caregivers. These are unpaid family, friends, or others voluntarily caring for ill, disabled, or otherwise dependant persons. Informal caregivers (hereafter ‘caregivers’), such as the parent of a child with special needs, an adult child caring for a parent with Multiple Sclerosis or a spouse caring for a partner with dementia, often face stressful and demanding challenges. These challenges take a toll. Research has consistently found that caregivers display decreased levels of physical and psychological health compared to non-caregivers (Pinquart & Sörensen, 2003; Zhang, Vitaliano & Lin, 2006). Once described as “invisible patients” (Manne, 2005), attention has turned to understanding and tending to the well-being of caregivers themselves. Specifically, a growing body of literature exists solely to investigate the life satisfaction of caregivers. Unfortunately, no studies have specifically investigated the life satisfaction of caregivers for youth receiving community mental health treatment. This unique population of caregivers is the focus of the current paper.

Satisfaction with life (SWL) is the cognitive component of subjective well-being. It is the global evaluation of the quality of one's life as a whole (Pavot & Diener, 1993). Individuals base SWL ratings information that is "chronically assessable". In this way, ratings display a modest stability over a person's life (Fujita & Diener, 2005; Pavot & Diener, 2008). In other words, current mood shows a relatively small contribution to assessments of SWL compared to a more stable, underlying cognitive judgment (Pavot & Diener, 2008). Despite this stability, significant changes in life circumstances influence SWL ratings over time (Fujita & Diener, 2005; Pavot & Diener, 2008). For example, Lucas, Clark, Georgellis & Diener (2003) found long-term changes in SWL related to stressful life events such as unemployment or the death of a loved one. Given the significant burden and strain caring for a child with mental health issues can cause (Brannan & Heflinger, 2006; McDonald, Poertner, & Pierpont, 1999), the caregiving role may also be considered a significant change in life circumstances or stressful life event. And, in fact, research in other caregiver populations consistently demonstrates that caregivers report lower levels of life satisfaction compared to non-caregivers (for example, see Ha, Hong, Seltzer & Greenberg, 2008; Moller-Liemkuhler, 2005).

The relationship between the caregiver and care-recipient is most likely best described as complex and reciprocal (Early, Gregoire, & McDonald, 2002). Therefore, not only do the daily challenges presented from specific diseases or disorders impact caregiver well-being, but the caregiver's well-being may also impact the care-recipient. Evidence supports both sides of influence. On the caregiver side, one of the most consistent predictors of caregiver stress is the care-recipient's symptom severity (Awad & Voruganti, 2008; Brannan & Heflinger, 2006). It is this stress that may directly influence caregiver life satisfaction. On the care-recipient side, caregiver well-being has been shown to relate to the quality of care provided and even the care-recipient's quality of life (Takai et al., 2009; Teri, 1997; Thomas et al., 2006; Thommessen, Aarsland, Braekhus, Oksengaard, Engedal & Laake, 2002). For example, in studies of caregivers of youth with mental health disorders, aspects of caregiver well-being predicted the type, length, and continuity of mental health services received (Bickman, Foster & Lambert, 1996; Foster, 2000; Brannan, Heflinger & Foster, 2003). These studies highlight the importance of viewing the caregiver-patient dyad as one with bidirectional influences. Tending to the caregiver may be highly beneficial to both the caregiver and youth.

Current Study

Despite the apparent abundance of research in caregiver life satisfaction, work is largely restricted to studies of caregivers for individuals with degenerative or permanent diseases such as dementia or traumatic brain injury. Few studies investigate SWL in caregivers of clinically-referred youth. While research from other caregiver populations may be applicable, some differences limit generalizability to the current population. First, caregivers of clinically-referred youth are often parents (birth, step, or foster), whereas the majority of previous research focuses on caregivers who are spouses and adult children. This is an important distinction given the nature of the caregiver's relationship to the care recipient differentially impacts the caregiving experience (Choi & Marks, 2006; Östman, Wallsten & Kjellin, 2005). Second, in contrast to caregivers of terminal, progressive, or end-of-life disorders, mental illness may have only a small, if any, effect on youth life expectancy (Dembling, Chen & Vochon, 1999). Thus, caregivers will likely continue their role as caregivers for many years; their care recipients expected to outlive them. Finally, clinically-referred youth may receive treatment for problems not considered degenerative or permanent in the same way as Alzheimer's or multiple sclerosis. The symptoms experienced by these youth could potentially improve with treatment. Thus, the relationship between the mental health problems of the youth and the impact felt by the caregiver may change over

time depending on the impact of treatment. For these reasons, the investigation of SWL in the distinct population of caregivers of clinically-referred youth is warranted.

In the present study, the relationship between caregiver life satisfaction and youth symptom severity are investigated over the course of youth treatment. Multiple observers including the youth, the youth's caregiver, and the youth's clinician often measure youth symptom severity. Because the views of all three respondents may contribute unique information in the treatment process, no one source is considered superior to the others (Achenbach, McConaughy & Howell, 1987). However, a historically low correspondence between the ratings of different respondents is well documented (De Los Reyes & Kazdin, 2005; Ferdinand, van der Ende & Verhulst, 2004). Thus, analyses were conducted separately with symptom severity ratings from three different respondents: caregivers, youths, and clinicians.

In addition to youth symptom severity, the relationship between caregiver SWL and several background variables are explored. These variables were chosen based on prior research. For example, Diener, Suh, Lucas and Smith (1999) review the demographic variables investigated for predicting life satisfaction. Their review revealed that being married, higher levels of education, and higher yearly incomes were associated with greater life satisfaction. There remains some debate over how SWL relates to age. In his 1967 review concerning *who is happy*, Wilson (1967) concluded that youth (i.e., younger age) predicts happiness. Thus, the view that life satisfaction decreases with age was accepted. Later research then reported life satisfaction to increase with age (Diener & Suh, 1998) and research that is even more recent claimed SWL does not change with age (Hsu, 2010). No consensus has been reached. Finally, research has documented that individuals with emotional, behavioral or substance disorders have lower SWL than those without such disorders (Arrindell, van Nieuwenhuizen & Luteijn, 2001; Meyer, Rumpf, Hapke & John, 2004). Thus, variables chosen as predictors in the current study include caregiver age, marital status, household income, education, and previous mental health diagnosis.

Taken together, the primary research questions were: 1) what background caregiver characteristics relate to initial SWL? 2) Does initial caregiver SWL relate to baseline youth symptom severity? 3) Does SWL change over the course of youth treatment in relation to changes in youth symptom severity? And, 4) how does caregiver SWL relate to other samples?

Method

Participants

Participants were drawn from a larger study evaluating the effects of a measurement feedback system (Contextualized Feedback Systems® or CFS™) on youth outcomes. This sample represented 28 regional offices in 10 different states comprising part of a large national provider for home-based mental health services. The sample for the current paper included all youth who began treatment during the two and a half year data collection period ($N = 441$) but excluded those without at least one valid (defined as having 85% non-missing item responses) caregiver SWL measure ($n = 68$). This resulted in a final sample of 383 caregivers of youths receiving mental health treatment. No differences were found between those with and without a valid SWLS measure in terms of age, race or gender (for caregiver and youth), or in terms of caregiver education, marital status, income, or relationship to the youth (ex. birth parent vs. non-birth parent). Additionally, there were no differences on youth baseline symptom severity. The only difference identified was those with a valid SWLS measure remained in CFS™ longer ($M = 4.46$ months, $SD = 4.49$ compared with

those without a valid SWLS measure ($M = 2.47$ months, $SD = 3.22$; $t(449) = -4.17$, $p < .001$).

Caregivers ranged from 23 to 81 years old ($M = 44.6$, $SD = 10.8$). Most were primary caregivers (96%) and lived with the youth full time (97%). While the majority of caregivers were birth parents (56.1%), caregivers in the sample were also foster parents (17.4%), grandparents (10.2%), other family members (7.0%), adoptive parents (4.4%), stepparents (1.2%), or had another relationship to the youth (3.8%). Youth ranged from 11-18 years old ($M = 14.7$, $SD = 1.9$) and 51.9% were male. The majority of caregivers in the sample were not married (54.0%), had education no higher than a High School diploma or GED (82.1%), indicated racial background as Caucasian (61.2%) and had a household income less than \$35,000 (66.6%).

Measures

Caregivers' background form—As part of the larger CFS™ study, caregivers completed the Caregiver Background Form during their initial/intake session. This form includes items about caregiver and youth background profiles such as age, relationship, and previous diagnoses.

Satisfaction with Life Scale (SWLS)—The SWLS, developed by Diener, Emmons, Larson and Griffen (1985), is the most popular scale for measuring life satisfaction (Diener et al., 1999; Vassar, Ridge & Hill, 2008) and was administered in CFS™ at baseline and every two months during youth treatment. The SWLS includes five items: “In most ways my life is close to my ideal”; “The conditions of my life are excellent”; “I am satisfied with my life”; “So far I have gotten the important things I want in my life”; and “If I could live my life over, I would change almost nothing”. Respondents are asked to answer each item on a 7-point Likert scale (from 1 = *strongly disagree* to 7 = *strongly agree*). Total scores are the average of item responses (1-7). Pavot and Diener (2008) report an average item score of 4 as neutral, > 6.2 indicating ‘extremely satisfied’ and < 2 as ‘extremely dissatisfied’. The SWLS has a reported internal consistency Cronbach’s alpha of .87, test-retest correlation of .82 and a single factor solution replicated through factor analysis (Diener et al. 1985, Neto, 1993). This gives confidence the SWLS is measuring only the construct life satisfaction. The SWLS has also demonstrated sound psychometric qualities when used with caregivers of clinically-referred youth (Athay, 2012).

The current study investigates change over time. In order to better interpret change, an index of minimum detectable change (MDC) was calculated for the SWLS total score. An MDC indicates the amount a score must change for there to be a degree of confidence (here, 75%) that the change is not due to measurement error (Schmitt & Fabio, 2004). This is calculated based on the standard error of measurement (*SEM*) and the reported reliability ($\alpha = .87$; Diener et al., 1985). This resulted in an MDC of 0.68. Thus, if a SWLS total score changes by 0.68 points, there is 75% confidence it is not due simply to chance or measurement error.

Symptoms and Functioning Severity Scale (SFSS)—Developed by Bickman et al., (2007), the SFSS was completed by the clinician, caregiver, and youth bimonthly (e.g. every other session when sessions were held every two weeks) during treatment. Composed of 32 five-point Likert-type items, it yields a total score of global symptom severity as well as subscale scores for internalizing and externalizing behaviors. The SFSS has demonstrated sound psychometric qualities for all three respondent forms including internal consistency (range: Cronbach’s $\alpha = .93 - .95$), test-retest reliability (range: $r = .68 - .87$), construct validity, and convergent and discriminant validity. The SFSS also has established cutoffs for low, medium, and high scores. For the caregiver version, a score of 73 or more is considered

high severity, a score between 58 and 73 is medium severity, and a score less than 58 is low severity. Based on youth ratings, a score above 63 is high, 45 - 63 is medium, and less than 45 is low. Clinician ratings indicate a score above 69 as high, 57 - 69 is medium and less than 57 is low. The SFSS manual also includes MDCs for SFSS scores. The MDCs for the caregiver, youth, and clinician SFSS total scores are 4.26, 5.36, and 3.80 points respectively. For more information about the psychometric qualities of the SFSS, see the Peabody Treatment Progress Battery manual (PTPB: Bickman et al., 2007).

Procedure

As part of the larger CFS™ study, respondents completed measures during the last five minutes of the clinical session using paper- and pencil- forms. Completed measures were entered into the CFS™ application by administrative staff at the treatment sites. Data was received de-identified. The Vanderbilt Institutional Review Board waived consent.

Data Management and Missingness

This study investigated the trajectory of SWL over time. Thus, SWLS measurements were described as nested within caregivers. Due to the nature of the study, where data collection was dependent on initiation and frequency of treatment for each client, caregivers had varying numbers of SWLS measurements. Of the 383 caregivers, approximately 49% of had only one time point, 30% had two, 11% had three, and 10% had more than three. All data was utilized in analyses where it contributed information. Thus, those with only one SWLS contributed information for parameter estimates concerning initial SWLS but did not contribute to parameter estimates related to change over time. Youth received treatment for an average of 4.46 months (range: 0.25 - 25.67, $SD = 4.29$) with an average of 14 treatment sessions (range: 1-102, $SD = 12.9$).

Comparisons were made between caregivers with varying number of time points. Specifically, caregivers with only one time point were compared with those with more than one and caregivers with one or two were compared with those with more than two. Caregivers with only one time point were in the study significantly less time ($M = 3.16$ months) than those with more than one time point ($M = 6.10$ months; $t(381) = 7.46$, $p < .001$). Similarly, caregivers with one or two time points were in the study significantly less time ($M = 3.67$ months) than those with more than two time points ($M = 8.29$ months; $t(381) = 10.14$, $p < .001$). No other differences were found between caregivers with varying number of time points based on youth age, caregiver age, youth baseline symptom severity, or initial caregiver SWL.

The SFSS and SWLS were part of a larger battery of measures (i.e., the PTPB) used in the evaluation study mentioned previously. Within this battery, the SFSS and SWLS measures were not scheduled to be completed during the same clinical session. Therefore, SFSS measurements were aggregated by month around each SWLS measurement. For example, SFSS scores were aggregated based on measurements two weeks before and two weeks after each SWLS measurement point. This maximized the ability to inspect how SWL functions over time along with changes in the SFSS.

Multiple imputation (MI) was used for missing data from the caregiver background form; specifically missing values of caregiver age, household income, marriage status, highest level of education achieved and previous diagnosis of an emotional, behavioral or substance use disorder. Following procedures suggested by McKnight, McKnight, Sidani and Figueredo (2007), missing data across subjects and variables were inspected. No discernible patterns of missingness were found indicating non-MAR. Thus, missing data were treated as MAR and five imputed data sets were created. Averaged results are presented.

Statistical Analysis

Analyses employed hierarchical linear modeling (HLM) using HLM 6 computer software (Raudenbush, Bryk & Congdon, 2004). HLM is the most appropriate technique with the current data for two main reasons. First, multiple observations per individual are used. In order to avoid violating the independence assumption, HLM takes this hierarchical structure of the data into account where multiple time points are nested within individuals. In this way, hierarchical analyses yield a picture of variability in individual trajectories rates of SWL and enables the simultaneous estimation of the influence of variables from different levels (e.g., between- and within-caregiver effects) and their cross level interactions on the dependent variable (Raudenbush & Byrk, 2002). Second, HLM does not require an equal number or equal spacing of observations per individual, thereby accommodating the unequal number of SWL observations across caregivers.

The growth models used consist of two levels: Level-1 (within-caregiver) model, and a level-2 (between-caregiver) model. The within-caregiver model enables estimation of different parameters of growth, such as initial status and rate of change in each caregiver. The between-caregiver model allows for investigation of things such as the mean rate of change for all caregivers and caregiver correlates of initial status and change. To test the primary hypothesis, that improvement in SWL would correspond to the improvement of youth's symptom severity, the recommendations of Singer and Willet (2003) were followed to model the covariation. The time-varying covariates were divided into two pieces: a time-invariant component (i.e. Youth symptom severity at intake: SFSSin) and a time-varying component (i.e. changes in symptom severity from intake: SFSSch). Intake severity was grand mean centered to facilitate discussion concerning individuals above or below average in symptom severity.

One group of models was conducted for each of the three respondents on the SFSS: the caregiver, youth, and clinician. Separate models were utilized in order to analyze individually how caregiver life satisfaction varies based on the symptom severity rating of each independent respondent. An example of the within-caregiver model (level 1) used for each caregiver in the sample is:

$$SWL_{ti} = \pi_{0i} + \pi_{1i}(Time_{ti}) + \pi_{2i}(SFSSch_{ti}) + e_{ti} \quad (1)$$

Where SWL_{ti} represents the caregiver's life satisfaction of caregiver i at time t , $Time_{ti}$ represents the time in months the youth had been in treatment and $SFSSch$ indicates the change in youth's symptom severity since intake as rated by person i at time t .

The between-caregiver (level-2) model addresses research questions about variability in initial SWL, change over time and whether change in SWL is related to change in youth symptom severity. Caregiver background variables from the caregiver self-report background form were also included as predictors of initial life satisfaction, most being dummy coded. These include marital status (married/living as married), highest level of education (High school diploma/GED) and whether the caregiver had a previous mental health diagnosis. This sample shows a very limited range of household income; the highest income category was just over \$35,000 a year. Although previous research reports significant effects of income on SWL, results were small and often carried out with individuals reporting household incomes well over a million dollars. Therefore, a relationship between SWL and income is not expected in the current sample. Nonetheless, two indicators of household income were included: Income L20 (income less than \$20,000) and IncomeH35 (income higher than \$35,000). Two variables for caregiver age (Younger, Older) were also included given the conflicting evidence in the literature concerning SWL and age. Younger caregivers included those under 40 years old and older caregivers were

over 60. Additionally, the caregiver relationship to the youth (birth parent vs. other) was included as a predictor. Descriptive work found that initial SWL was significantly lower in birth parents ($M = 4.02$, $SD = 1.52$) compared with non-birth parents ($M = 4.93$, $SD = 1.44$; $t(342) = 5.64$, $p < .001$). No differences in initial SWL were found between groups of non-birth parents (e.g. adoptive, step, foster, grandparents, etc.).

An example of the level-2 model used is specified as follows:

$$\begin{aligned}\pi_{0i} = & \beta_{00} + \beta_{01}(\text{SFSSin}) \\ & + \beta_{02}(\text{Diagnosis}) \\ & + \beta_{03}(\text{Married}) \\ & + \beta_{04}(\text{Education}) \\ & + \beta_{05}(\text{IncomeL20}) \\ & + \beta_{06}(\text{IncomeH35}) \\ & + \beta_{07}(\text{Younger}) \\ & + \beta_{08}(\text{Older}) \\ & + \beta_{09}(\text{BirthParent}) + r_{0i}\end{aligned}\quad (2a)$$

$$\pi_{1i} = \beta_{10} + r_{1i} \quad (2b)$$

$$\pi_{2i} = \beta_{20} \quad (2c)$$

which captures mean initial SWL (β_{00}), monthly rate of change in SWL (β_{10}), the initial relationship between youth's intake symptom severity and SWL (β_{01}), and the association between change in SWL and change in youth's symptom severity (β_{20}). The r_{0i} and r_{1i} are level-2 residuals, also known as random effects. r_{0i} indicates the deviation of initial SWL for a caregiver from the mean, and r_{1i} captures deviation from mean rate of SWL change for caregivers. These residuals are assumed to be normally distributed with variance τ_{00} and τ_{11} , respectively. A lack of degrees of freedom eliminated the ability to investigate the variance for change in symptom severity (π_{2i}). Therefore, τ_{21} was fixed within the models.

Research question 4 required alternate statistical techniques. Although it would be preferable to have non-caregivers in the current sample in order to compare sample means, this was not within the scope of the larger evaluation study. To inform this question, however, unpaired t-tests were used to compare the current sample SWL to means published from other samples (e.g. normative adult samples, other caregiver samples) which used the SWLS.

Results

See Table 1 for descriptive statistics for continuous variables at the initial and last time points. A few characteristics of the data are worth noting. A small positive correlation between SWL and time ($r = .26$, $p < .01$) indicated higher life satisfaction was significantly associated with youth who were in treatment longer. Additionally, matched pair t-tests comparing SFSS scores at baseline to the last time point indicated a small but significant decrease in mean symptom severity as rated by the caregiver ($t(332) = 2.07$, $p = .04$), youth ($t(350) = 7.64$, $p < .001$) and clinician ($t(327) = 4.12$, $p < .001$). Finally, correlations between SWL and SFSS ratings indicated a significant relationship across both time points when youth symptom severity is rated by the caregiver ($r = -.28$, $p < .01$; $r = -.21$, $p < .05$) and

clinician ($r = -.20, p < .01$; $r = -.17, p < .01$). This relationship was not present in the youth ratings of symptom severity.

Table 2 summarizes the results of fitting the data to the final growth models defined by equations 1 and 2 for each SFSS respondent. Prior to fitting each final model, baseline models for each SFSS respondent were conducted without level two predictors. However, the final models displayed superior fit over the baseline models for the caregiver (model difference: deviance = 68.56, $df = 8$, chi-square $p < .001$), youth (model difference: deviance = 61.81, $df = 8$, chi-square $p < .001$) and clinician (model difference: deviance = 33.37, $df = 8$, chi-square $p < .001$). Therefore, only final model results are reported.

The Caregiver SFSS model indicated significant variability in initial SWL among caregivers ($\tau_{00} = 1.00, p < .001$) but the mean rate of SWL change by month was not statistically different from zero ($\beta_{10} = -0.01, p = .56$). Additionally, the rate of change did not significantly vary between caregivers ($\tau_{11} = 0.00, p = .08$). Thus, on average, the mean trajectory of SWL for caregivers was flat over the course of the youth's treatment. However, a change in symptom severity was significantly related to subsequent ratings of SWL ($\beta_{20} = -.021, p < .05$). With one exception, results were identical across youth and clinician SFSS models. Change in symptom severity based on youth ratings was not related to subsequent caregiver SWL.

Research Question 1: What caregiver background characteristics relate to initial SWL?

Prior SWL research reported marriage status, age, income, educational level, and previous diagnosis of an emotional, behavioral or substance use problem significantly related to SWL. As such, these variables were included as caregiver covariates in all final models. Results were similar across all three models with few exceptions. For simplicity, only caregiver SFSS model results are reported in text for the current research hypothesis.

Consistent with the literature, married status significantly related to initial SWL ($\beta_{03} = 0.58, p < .001$). When all other variables are held constant, married caregivers (or those living as married) had a predicted life satisfaction more than half a point higher than those not married (e.g. those who are divorced, separated, widowed, or never married). This is difference of over one-third of a standard deviation. Additionally, caregivers who were the birth parents of the youth had significantly lower SWL compared with non-birth parents ($\beta_{09} = -0.54, p < .001$). On average, birth parents reported an initial life satisfaction just over half a point lower. This is more than one-third of a standard deviation.

Results of parameter estimates for the age dummy variables found being younger significantly related to initial caregiver life satisfaction ($\beta_{07} = 0.44, p < .05$). Holding all other variables constant, caregivers under 40 had just under one-half a point higher (one-third of a *SD*) predicted average initial life satisfaction compared to their older counterparts. This is in contrast to Diener and Suh's (1998) conclusion that life satisfaction increases with age. However, no significant relationship for caregivers over sixty and life satisfaction was found.

Income was not significantly related to SWL in this sample based on either income variable. These nonsignificant results were expected given the limited range of income in this sample. Highest education level achieved also yielded nonsignificant results. Caregivers with more than a high school diploma (or GED) did not differ on initial SWL compared to caregivers with less education.

Consistent with previous research findings, a previous diagnosis of an emotional, behavioral or substance use disorder significantly predicted initial caregiver life satisfaction ($\beta_{02} =$

-0.77, $p < .001$). Holding all else constant, caregivers reporting a previous emotional, behavioral or substance use disorder had an average predicted life satisfaction more than two-thirds of a point lower than those reporting no previous disorder. This equates to approximately one-half of a standard deviation difference in life satisfaction.

Research Question 2: Does initial SWL relate to youth baseline symptom severity?

As seen in Table 2, caregiver's initial life satisfaction was significantly related to the youth's baseline symptom severity when the SFSS was completed by the caregiver ($\beta_{01} = -0.03$, $p < .001$) and Clinician ($\beta_{01} = -0.02$, $p < .001$), but not the youth. This means, holding all other variables constant, for every one unit of symptom severity above the mean reported on the SFSS by the caregiver or clinician, the caregiver's initial life satisfaction is lower by 0.03 and 0.02 points respectively. To make this finding more meaningful, the caregiver SFSS results are inspected with more detail. Take the case of a youth with a caregiver-rated baseline symptom severity score one standard deviation above the mean (SFSS score = 77.53) and a youth with baseline symptom severity one standard deviation below the mean (SFSS score = 52.87). This corresponds to a 24.66-point difference in baseline severity. According to model results, the predicted difference between these caregivers in initial SWL is 0.74 points (24.66×0.03), when all other variables are equal. This is nearly half a standard deviation difference in initial SWL, or the difference between reporting '*slight dissatisfaction*' and '*slight satisfaction*' according to Pavot and Diener (2008). The same comparison made with clinician rated youth symptom severity yielded a total difference in initial caregiver SWL of 0.43 points.

Research Question 3: Does SWL change over the course of youth treatment in relation to changes in youth symptom severity?

Results indicated that changes in youth symptom severity were related to subsequent caregiver SWL in the caregiver ($\beta_{20} = -0.02$, $p < .05$) and clinician ($\beta_{20} = -0.02$, $P < .05$) SFSS models. This relationship was not evident in the youth SFSS model. Thus, holding all other variables constant, a one-point decrease in youth symptom severity according to the caregiver SFSS predicted a 0.02-point higher SWL. Similarly, a one-point decrease in youth symptom severity according to the clinician SFSS predicted a 0.02-point higher caregiver SWL. However, based on the previously calculated MDC for the SWLS, for a caregiver's life satisfaction to display a reliable increase (i.e., an increase of 0.68 points), youth symptom severity would have to decrease by approximately 32 points according to the caregiver SFSS or approximately 28 points according to the clinician SFSS. Although this amount of change is obtainable on the SFSS, few youth demonstrated this amount of symptom reduction within the course of the study (refer to Table 1).

Research Question 4: How does the mean caregiver SWL relate to values in other samples?

As seen in Table 3, Caregivers of clinically-referred youth had significantly lower levels of SWL compared to reports from several non-caregiving samples including new mothers ($M(588) = 9.96$, $p < .001$, (Drake, Humenick, Amankwaa, Younger & Roux 2007), Dutch and English female adults ($M(1812) = 9.58$, $p < .001$, van Loon, Tjihuis, Surtees & Ormel, 2001; $M(695) = 5.36$, $p = .02$, Maltby & Day, 2004 respectively), and US college students ($M(1560) = 4.43$, $p < .001$, Pavot & Diener, 2008). Additionally, caregivers of clinically-referred youth had similar mean levels of SWL to other caregiving samples including elderly caregivers ($M(460) = 1.10$, $p = .27$, Vitaliano, Russo, Young, Becker & Maiuro, 1991), family caregivers of women with physical disabilities ($M(429) = 0.79$, $p = .43$, Rivera, Elliott, Berry, Shewchuk, Oswald & Grant, 2006), mothers of children with autism ($M(500) = .33$, $p = .74$, Ekas, Lickenbrock & Whitman, 2010) mothers of children with down syndrome ($M(400) = .27$, $p = .79$, Griffith, Hastings, Nash & Hill, 2010), and institutional caregivers of people

with disabilities ($t(469) = .87, p = .383$, Lin, Lin & Wu, 2010). Although differences could be due to sampling differences, these comparisons provide support that caregivers of clinically-referred youth display levels of life satisfaction lower than non-caregiving adult samples and levels similar to other caregiver samples.

Discussion

The present study examined the linear trajectories of life satisfaction of caregivers for youth receiving mental health treatment. Specifically, the relationship between life satisfaction and youth symptom severity was investigated. On the most global level, caregivers of clinically-referred youth reported levels of life satisfaction lower than norms reported from non-caregiver samples. According to Pavot and Diener (2008), these are levels in the neutral range ($M = 4.45$, see Table 1). Overall results also indicated that caregiver SWL maintained steady at this level throughout youth treatment.

The lack of a linear relationship between SWL and time was not necessarily surprising given two conceptual models found in the literature hypothesizing how SWL functions over time in face of ongoing stressful events: the adaptation model (Diener, Lucas & Scollon, 2006) and the cumulative stress model (Ha et al., 2008). The adaptation model suggests that life events exert temporary negative influences on SWL but long-term exposure to a constant stressor will raise the person's ability to adapt with the challenge, thus resulting in a rise in life satisfaction back to baseline levels. On the other hand, the cumulative stress model posits that ongoing stressors build tension and negative emotions, slowly decreasing SWL over time without displaying a return to baseline. Either conceptualization yields a non-linear trajectory. Within the adaptation model, caregiver SWL decreases as the youth begins his/her struggle with mental health challenges but increases back to baseline as the caregiver adapts to caring for a youth with mental health needs (see Figure 1a). The cumulative stress model displays caregiver SWL remaining stable until the ongoing stress of caring for a child with mental health needs continues to slowly decrease life satisfaction over time (see Figure 1b). However, based on the logic of the cumulative stress model, youth improvement in symptom severity may remove the ongoing stressor, returning caregiver SWL to baseline levels (see Figure 1c). All three of these hypothesized non-linear life satisfaction trends may explain the lack of a significant linear effect of time in the current study. However, analysis of non-linear long-term trends requires an adequate proportion of the sample to have three or more measurement points. Unfortunately, this was not available in the current data. Future work should investigate non-linear trajectories of SWL in caregivers of clinically-referred youth.

Despite the lack of a linear change over time, current findings do suggest that changes in youth symptom severity reported by the clinician or caregiver related to changes, albeit very small, in subsequent caregiver life satisfaction. However, very few youth in the current sample improved in symptom severity the predicted amount needed to produce a reliable increase in caregiver life satisfaction. There are a few potential explanations for this. First, it is possible that, for the majority of youth, the treatment they were receiving was simply not effective in reducing their symptom severity. Alternatively, there may be a lag effect in how youth severity and caregiver life satisfaction relate. For example, it may be the case that it takes not only a change in youth symptom severity, but that this change must be maintained for a period of time before caregiver SWL changes. Unfortunately, data was not collected after treatment termination for the current sample.

Another reason that reductions in symptom severity may have demonstrated a minimal relationship to changes in life satisfaction is that it is possible a third variable produced changes in both variables, producing an illusory correlation. Alternatively, it may be that a

third variable, such as caregiver strain, mediated this relationship. Caregiver strain refers to the negative consequences and emotional impact on caregivers when caring for a relative with special needs. Research has reported high correlations between life satisfaction and caregiver strain (e.g. Khan, Pallant, & Brand, 2007; Iecovich, 2008), life satisfaction and symptom severity (e.g. Early, Gregoire & McDonald, 2002), and caregiver strain and symptom severity (e.g. Sales, Greeno, Shear, & Anderson, 2004). This suggests that caregiver strain is a potential mediator of the relationship between life satisfaction and symptom severity. And, in fact, recent research tested this mediatory relationship and found a significant indirect effect (Athay, 2012). Future work is needed to investigate how changes in caregiver strain relate to the trajectory of life satisfaction of these caregivers. This is especially important for the possibility that utilizing interventions targeting caregiver strain may be able to lessen the impact that youth's symptoms have on caregiver SWL.

Interestingly, the significant relationships between caregiver SWL and youth symptom severity were found only in the caregiver and clinician SFSS respondent models. These results were not present for the youth SFSS model. However, low agreement between informants is well established regarding psychopathology in youth (Achenbach et al., 1987; Cantwell, Lewinsohn, Rohde & Seeley, 1997; Molina, Pelham, Blumenthal & Galiszewski, 1998) and the strength of the (dis)agreement varies based on the pair of respondents compared (De Los Reyes & Kaszin, 2005). Consistent with the literature, the manual for the SFSS (Bickman et al., 2007) reports the lowest inter-rater correlation between the youth and the clinician ($r = .36$) followed by the clinician-caregiver correlation ($r = .44$) and the youth-caregiver correlation ($r = .45$). Caregiver and clinician ratings of youth symptom severity yield results that are more similar. Caregiver and youth ratings of symptom severity correspond less. Another explanation for the lack of significance found in the youth SFSS model is that youth report lower average SFSS scores with higher variability and standard errors of measurement compared to caregivers and clinicians (Bickman et al., 2007). The lack of comparable findings in the youth SFSS model may be due to higher error variance of symptom severity when the SFSS is rated by youth.

Although the investigation of the relationship between caregiver background information and initial SWL confirmed several hypotheses, one result is especially striking: caregivers reporting a previous diagnosis of an emotional, behavioral or substance use disorder reported a significantly lower level of life satisfaction. These caregivers had a predicted life satisfaction score nearly one point lower than those without a previous diagnosis. While this may not be surprising, it may be important clinical information for the clinician to address during the youth's treatment. Knowing a caregiver's past diagnosis may encourage clinicians to offer referrals for the caregiver's own treatment. Additionally, clinicians may need to pay particular attention to caregivers who are birth parents, as they may be differentially impacted by the youth's mental health struggles. Results suggest birth parents had significantly lower SWL compared to non-birth parents.

Clinical Implications

Caregivers play an important role for clinicians treating youth with mental health issues. Not only are they are invaluable sources of clinical information in treating the youth, but they are the soldiers on the 'front line', so to speak. Most interact, support, and care for the youth on a daily basis and are intimately involved with the youth's struggle and challenges. However, this may come at a cost. Unfortunately, as demonstrated in this paper, one cost may be in life satisfaction. This highlights the need to redirect focus on to the caregiver and explore potential interventions that tend to the struggles and stressors of the caregiver, particularly if the caregiver is a birth-parent or has a history of a previous diagnosis themselves. Given the bi-directional nature of the relationship between the youth and caregiver, addressing these

things may be important not only for the health and well-being of the caregiver, but it may also produce positive benefits for the youth as well.

Limitations and Future Directions

One limitation of the present study is that the number of SWLS points per caregiver varied widely, with a large number of caregivers having only one data point. Although an advantage of using HLM is that all data were used in the model, parameter estimates would be more precise if caregivers had at least three SWLS. This is because only caregivers with more than one time point contributed information to time-dependant parameter estimates. However, the collection of more ongoing data will provide for a stronger analysis in the near future, including analysis of non-linear trends over time.

A related limitation of this study concerns data collection within a real-world setting. Researchers had little control over missingness and the variability in amount of caregiver data. Unlike conditions possible within lab-based investigations, researchers collecting data for the current study did not control the scheduled frequency of youth treatment sessions (e.g. weekly, bimonthly, etc.) or the actual administration of the questionnaires. Although a questionnaire administration schedule was provided, clinicians made decisions concerning session frequency and if/when questionnaires were administered. For example, during sessions where clinicians reported dealing with emergencies, they often also reported foregoing questionnaire administration. However, the real-world nature of the larger study where the current data were gathered is also considered a strength. These results were found under typical conditions within community mental health treatment. However, it is important to note that caregivers in this study represented a relatively narrow (low) range of household income, nearly all were female, and more than half (61%) were Caucasian. Results may not generalize to other caregiver populations. Reported ethnic breakdown of non-Caucasian caregivers was 27.2% African American, 5.5% American Indian, Asian or multiple races, and 6.1% other.

Finally, although current findings are informative for describing relationships between variables, no causal claims can be made. Concluding that caregiver SWL impacts youth symptom severity is as viable as concluding that caregiver SWL impacts youth symptom severity. In fact, the literature fails to conclude which factor constitutes the independent and dependent variable in this relationship (Early et al., 2002). Popular thought is the relationship is reciprocal. More research is needed to explore this complex relationship in greater depth.

In summary, this study examined the association between life satisfaction and youth symptom severity in caregivers for clinically-referred youth. Results indicated a significant inverse relationship between initial caregiver SWL and baseline youth symptom severity when caregivers or clinicians rated symptoms. Additionally, changes in caregiver life satisfaction demonstrate a small, inverse, relationship with caregiver and clinician reported changes in youth symptom severity. Although the causal direction of these relationships are unknown, results further confirm the concept that caregivers may be considered “invisible patients” (Manne, 2005) within the youth’s treatment process. Given their important role in the youth’s treatment process, attention to the well-being of caregivers is essential.

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Figure 1.
Conceptual Models of Longitudinal Life Satisfaction when Under Chronic Stress

Table 1

Descriptive Statistics of Continuous Variables at Initial and Last Time Points

Variable	Initial Time Point (N=383)		Last Time Point (N=195)		Change ^f	
	M	SD	M	SD	M	SD
SWL	4.45	1.55	4.36	1.59	-0.16	1.45
CG SFSS score	65.20	12.33	63.10	10.49	-2.02 *	11.70
Y SFSS score	56.14	13.19	51.49	14.19	-4.65 **	13.33
CL SFSS score	62.01	8.86	59.63	9.04	-2.38 **	8.44
Time			4.46	4.29		
<i>r</i> (SWL, CG SFSS)	-0.276 **		-0.213 *			
<i>r</i> (SWL, Y SFSS)	-0.61		-0.042			
<i>r</i> (SWL, CL SFSS)	-0.201 **		-0.169 **			
<i>r</i> (SWL, Time)			0.256 **			

Note: Correlation coefficients (*r*) are based on Pearson's correlations. SWL= Satisfaction with life scale; Time = months since treatment start; SFSS = youth symptom severity; CG = caregiver rating; Y = youth rating; CL = clinician rating.

^f Paired t-tests used to test significance of difference between time points.

* p< .05.

** p < .01.

Table 2

Parameter Estimates, by SFSS Respondent, for final Two-Level Growth Curve Models of Caregiver SWL

	Caregiver SFSS			Youth SFSS			Clinician SFSS		
	Parameter Estimate	95% CI		Parameter Estimate	95% CI		Parameter Estimate	95% CI	
Fixed Effects									
Initial SWL									
Intercept (β_{00})	4.31**	3.83, 4.78		4.39**	3.91, 4.86		4.45**	3.89, 5.00	
SFSSin (β_{01})	-0.03**	-0.04, -0.02		-0.00	-0.01, 0.01		-0.02*	-0.04, -0.01	
Diagnosis (β_{02})	-0.93**	-0.59, -1.27		-0.91**	-1.31, -0.52		-0.71**	-1.16, -0.25	
Married (β_{03})	0.58**	0.28, 0.88		0.47**	0.17, 0.78		0.39*	0.02, 0.76	
Education (β_{04})	0.23	-0.20, 0.65		0.26	-0.15, 0.67		0.27	-0.16, 0.69	
IncomeL20 (β_{05})	-0.01	-0.44, 0.42		0.06	-0.38, 0.51		-0.09	-0.59, 0.45	
IncomeH35 (β_{06})	0.16	-0.35, 0.67		0.22	-0.28, 0.71		0.19	-0.30, 0.68	
Younger (β_{07})	0.44*	0.12, 0.76		0.43*	0.08, 0.78		0.45*	0.08, 0.82	
Older (β_{08})	0.21	-0.19, 0.78		0.25	-0.22, 0.72		0.22	-0.32, 0.76	
BirthParent (β_{09})	-0.54*	-0.89, -0.18		-0.64*	-1.00, -0.29		-0.61*	-1.01, -0.21	
Time									
Intercept (β_{10})	-0.01	-0.04, 0.02		-0.02	-0.06, 0.02		-0.02	-0.05, 0.02	
SFSSch									
Intercept (β_{20})	-0.02*	-0.05, -0.00		0.01	-0.00, 0.02		-0.02*	-0.00, -0.05	
Variance Estimates^a									
Level one (σ^2)									
Intercept (τ_{00})	1.00**			1.00**			0.94**		
Growth (τ_{11})	0.00			0.00			0.00		
Proportion of net Between-Caregiver variance explained^b									
Intercept		0.31			0.29			0.32	

Note: Time was scaled in months and zero corresponds to intake. CI's were constructed using 1.96*SE;

^aSignificance calculated with chi-square test;

b Compared to unconditional growth model: $\tau = 1.50$ (62% of total variance).

** indicates significance at $p < .001$;

* indicates significance at $p < .05$;

Table 3

Comparison of SWL Means in Different Published Samples

Sample Characteristics	Mean (SD)	N	<i>t</i> ^a
1. Mothers 2-4 months after giving birth	5.61 (0.85)	207	9.96**
2. Dutch Adults (Female)	5.14 (1.16)	1431	9.58**
3. Caregivers of spouses with cancer	5.05 (1.37)	314	5.36**
4. US College students (weighted average)	4.78 (1.16)	1179	4.43**
5. English Adults (Female)	4.74 (1.34)	214	2.30*
6. Relatives of 1 st hospitalized patients w/ schizophrenia or depression	4.64 (1.60)	83	1.01
7. Institutional caregivers of people with disabilities	4.60 (0.90)	88	0.87
8. Mothers of children with down syndrome	4.55 (1.50)	19	0.27
9. Caregivers of clinically-referred youth	4.45 (1.55)	383	
10. Mothers of children with autism spectrum disorder	4.40 (1.33)	119	0.33
11. Family caregivers of women with physical disabilities	4.26 (1.72)	48	0.79
12. Elderly Caregivers	4.24 (1.54)	79	1.10

Notes:

^a = unpaired t-test with current sample.

* p < .05.

** p < .001.

Samples: 1 = Drake, Humenick, Amankwaa, Younger & Roux (2007); 2 = van Loon, Tjhuis, Surtees & Ommel (2001); 3 = Kim, Carver, Deci & Kasser (2008); 4 = Pavot & Diener (2008); 5 = Maltby & Day (2004); 6 = Moller-Leimkuhler (2005); 7 = Lin, Lin & Wu (2010); 8 = Griffith, Hastings, Nash & Hill (2010); 9 = current study; 10 = Ekas, Lickenbrock & Whitman (2010); 11 = Rivera, Elliott, Berry, Shewchuk, Oswald & Grant (2006); 12 = Vitaliano et al. (1991).